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direction, and a control interface for receiving data of a file to be recorded on the recording medium and positioning information for positioning the recording medium relative to the recording head assembly. The file data is recorded on the recording medium as a logical ring located within a logical cylinder spanning a finite length on the recording medium, with all data for the file being stored in a single logical ring on a single recording medium. The logical cylinder occupies a portion of the single recording medium.--

IN THE CLAIMS:

Please amend claims 1, 2, 4 to 12, 14 to 22, 26 to 28, and 31, as follows:

--1. (Amended) A method of configuring a tape storage medium for recording a data file having a finite size, comprising:

defining a logical cylinder on said tape storage medium, the tape storage medium comprising a single magnetic tape, said logical cylinder comprising at least one storage ring and being located entirely on a portion of the magnetic tape; and

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recording, on the at least one storage ring, said data file;

wherein a length of said logical cylinder is dynamically allocated based on a size of the data file.

2. (Amended) The method of claim 1, wherein the length of said logical cylinder is selected so that substantially one half of data selected from the data file is recorded in a first longitudinal direction of movement of the tape storage medium with respect to a recording head,

A2 and remaining data is recorded in an opposite longitudinal direction of movement of the tape storage medium with respect to the recording head.

4. (Amended) The method of claim 1, wherein the logical cylinder comprises a plurality of storage rings, and wherein different data files having substantially a same size as the size of the data file are stored in different storage rings of a same logical cylinder.

5. (Amended) The method of claim 1, wherein recording includes tracking a servo track disposed on the tape storage medium and aligning a recording head with said storage ring based on said tracking.

A3 6. (Amended) The method of claim 1, wherein information about the logical cylinder and the at least one storage ring is recorded on the tape storage medium.

7. (Amended) The method of claim 1, wherein respective data files are associated with respective single storage rings.

8. (Amended) A magnetic tape data storage system for storing a data file, comprising:
a single magnetic tape having a longitudinal recording direction and a plurality of transversely spaced logical tracks;

at least one logical cylinder extending along the longitudinal recording direction of the single magnetic tape and being located entirely on a portion of the single magnetic tape; and

at least one data storage ring located entirely within a logical cylinder, said data file being recorded entirely on a single data storage ring.

9. (Amended) The magnetic tape data storage system according to claim 8, wherein a longitudinal extent of the logical cylinder is dynamically allocated based on a size of the data file.

A³ 10. (Amended) The magnetic tape data storage system according to claim 8, wherein the single data storage ring comprises at least two of the transversely spaced logical tracks and the transversely spaced logical tracks of the single data storage ring are recorded in opposite recording directions.

11. (Amended) The magnetic tape data storage system according to claim 8, wherein the single data storage ring stores an identification field and a data storage field.

12. (Amended) The magnetic tape data storage system according to claim 11, wherein the identification field is recorded on a magnetic recording surface of the single magnetic tape.

A⁴ 14. (Amended) The magnetic tape data storage system according to claim 8, wherein the single magnetic tape is between one and eight inches wide.

15. (Amended) The magnetic tape data storage system according to claim 8, wherein the single magnetic tape also includes an optically detectable servo track disposed thereon.

16. (Amended) A method of storing, on a single storage medium, a data file of finite size, comprising:

determining a size of the data file;

determining, from the size of the data file, a length of a storage ring on said single storage medium for recording said file on said storage ring; and

defining, on said single storage medium, a logical cylinder to accommodate said storage ring on said logical cylinder, the logical cylinder being located entirely on a portion of the single storage medium.

17. (Amended) The method of claim 16, wherein said storage ring comprises two substantially parallel logical tracks, with the logical tracks being recorded in opposite recording directions.

18. (Amended) The method of claim 16, wherein said single storage medium comprises logical tracks arranged in a circular pattern, and wherein a contiguous portion of said circular pattern defines the storage ring.

19. (Amended) The method of claim 18, wherein said single storage medium is a magnetic disk.

20. (Amended) The method of claim 18, wherein said single storage medium is a cylinder having a magnetic recording surface.

21. (Amended) A data storage device comprising:

a recording head assembly having a recording head and a servo head operatively connected to the recording head;

a recording medium capable of being positioned relative to the recording head assembly for recording data in a longitudinal recording direction; and

A4 a control interface for receiving data of a file to be recorded on the recording medium and positioning information for positioning the recording medium relative to the recording head assembly;

wherein said file data is recorded on said recording medium as a logical ring located within a logical cylinder spanning a finite length on the recording medium, with all data for the file being stored in a single logical ring on a single recording medium, the logical cylinder being located entirely on a portion of the single recording medium.

22. (Amended) The data storage device of claim 21, wherein the recording medium is a magnetic tape.

A5 26. (Amended) A method of recording a data file as a logical ring on a single recording medium, comprising:

determining a file size of the data file;
determining a ring size of the logical ring based on said file size;
defining, on said single recording medium, a logical cylinder to contain said logical ring,
the logical cylinder being located entirely on a portion of the single recording medium; and
recording said data file in its entirety within said logical ring.

27. (Amended) The method of claim 26, wherein an additional data file having substantially a same file size as the data file is recorded entirely on an additional logical ring located in the logical cylinder.

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28. (Amended) The method of claim 26, wherein the single recording medium is a magnetic tape and recording further comprises:
detecting a last one of previously recorded logical cylinders;
positioning a head assembly having a recording head in an area of the magnetic tape past an end indicator of a last previously recorded logical cylinder; and
moving at least one of the magnetic tape and the recording head relative to each other to record the data on at least two parallel logical tracks within the logical cylinder.

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31. (Amended) The method of claim 26, wherein the recording medium is a magnetic disk and defining a logical cylinder includes allocating, on the magnetic disk, a contiguous circular recording track capable of recording said data file as a contiguous logical track.--